

PRELIMINARY SITE ASSESSMENT

**Murphy's Waste Oil Service, Inc.
252 and 252 Rear Salem Street
Woburn, Massachusetts**



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Prepared for:

**Clean Harbors, Inc.
325 Wood Road
Braintree, Massachusetts 02184**

Prepared by:

**Clean Harbors Environmental Engineering Corporation
325 Wood Road
Braintree, Massachusetts 02184**

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ENVIRONMENTAL ENGINEERING CORPORATION
325 WOOD ROAD, BRAINTREE, MA 02184
(617) 849-1200

EXECUTIVE SUMMARY

Based on the findings of a Preliminary Site Assessment study, a subsurface investigation program should be conducted on the site. The purpose of the investigation should be to evaluate subsurface conditions for evidence of contamination. This recommendation is based on the historical uses of the site as a bulk oil storage facility and releases of oils and hazardous materials used on nearby properties. The on-site soil and groundwater testing parameters should include evidence of petroleum contamination and coincide with the United States Environmental Protection Agency (US-EPA) testing parameters for nearby properties; the site is situated within a one-square-mile US-EPA study area as listed on the National Priorities List (#312 of 770 sites). The study area was listed based on chlorinated solvent contamination of two municipal drinking water wells, located one-quarter of a mile from the site.

From the 1920's to 1987, the site was primarily used a bulk oil storage facility with a maximum storage capacity of 125,000 gallons. Land spreading of waste oils and incidental petroleum product releases would be the primary sources of the on-site petroleum contamination that may exist on the site. The land spreading of waste oils was an approved dust control measure until the late 1970's; site occupants ceased this activity in the late 1970's. Incidental releases of petroleum products on the site included: a surficial release of approximately 150 gallons of diesel fuel (1987), and an unknown quantity of a petroleum product, presumed to be diesel fuel or gasoline (1987). Apparently, a portion of the site was historically used as an "oil pit" (1950's); no documentation or other reports were found during this investigation to support this statement.

Abutting developed properties are occupied by a tannery, a former drum and tank reconditioning facility, a railroad line and residences. A strong, foul odor, resembling hydrogen sulfide, has often been noted emanating from the tannery property; an air-monitoring program for the site relative to this emission should also be considered. Many documented petroleum product and hazardous material releases as well as reported releases have occurred on most of these abutting properties. The northern abutting property is undeveloped land historically used for dumping of hazardous materials, particularly chlorinated solvents.

Some migratory pathways to be considered include: the sewer easement on the site used for tannery wastewater discharge (which has periodically overflowed); potentially contaminated groundwater flowing through the site from upgradient properties (groundwater flow patterns are and have been altered during pumping of nearby production wells for the tannery); and possibly contaminated surface water runoff/drainage. Details of the Preliminary Site Assessment study are presented in the attached report.



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Clean Harbors Environmental Engineering Corporation (CHEE) is pleased to submit this Preliminary Site Assessment report for the property located at 252 Salem Street and 252 Rear Salem Street in Woburn, Massachusetts (the site). The site is owned by Old Oil Realty Trust and is occupied by Murphy's Waste Oil Service, Inc., a waste oil and virgin oil storage facility.

This investigation was conducted to determine whether releases of oils and/or hazardous materials have occurred on the site. CHEE evaluated on-site conditions relative to uses and storage of these materials, and whether any releases of these materials on nearby properties has any impact on the site.

A series of soil borings and groundwater monitoring wells must be performed on the site to further evaluate subsurface conditions. Based on the findings of this investigation, waste oils were periodically spread along the access driveways on the site until the late 1970's. At that time, State agencies approved this as a dust control measure. Land spreading of waste oils and incidental petroleum product releases would be the primary sources of the on-site petroleum contamination that may exist on the site. The land spreading of waste oils was an approved dust control measure until the late 1970's; site occupants ceased this activity in the late 1970's. Incidental releases of petroleum products on the site included: a surficial release of approximately 150 gallons of diesel fuel (1987), and an unknown quantity of a petroleum product, presumed to be diesel fuel or gasoline (1987). Apparently, a portion of the site was historically used as an "oil pit" (1950's); no documentation or other reports were found during this investigation to support this statement.

The subsurface exploration program should also include evaluation of contaminants present on the site from off-site sources. Three abutting properties have historically been used for dumping oils and/or hazardous materials. Since nearby production wells alter groundwater flow patterns, it is likely that the contaminants on nearby properties, if any, migrated to the site. The US-EPA and State agencies are currently investigating these three properties (among all other nearby properties, including the site) for evidence of contamination of the two nearby municipal drinking wells. It does not appear likely, at this time, that the historical uses of the site impacted the water quality in the municipal wells.

SCOPE OF WORK

This report summarizes the findings of an assessment which includes interviews with local, State and Federal officials and area property occupants; review of local, State and Federal documents; site visits; and information provided by representatives of Murphy's Waste Oil Service, Inc. of Woburn, Massachusetts.

The information presented in this report is based solely on available documents for review and officials for interviews. Due to litigation factors pursuant to site area properties, some information was not available for public review. The information incorporated within this report was accumulated during the months of December 1987 and November 1988.

Massachusetts Department of Transportation regulations for oils (MOO1). Prior to their removal in March 1988, these tanks were located in an area on the northern portion of the site referred to as the "oil yard" (detailed later).

Chief Robert Doherty of the City of Woburn Fire Department and area property occupants interviewed reported that Murphy's Waste Oil Service, Inc. was considered to be a "very clean and well run operation." Chief Robert Doherty additionally reported no known incidents of any releases of oils and/or hazardous materials on the site. A copy of a Site Visit Report prepared by Chief Doherty on December 1, 1982 for the Department of Environmental Quality Engineering (DEQE) is attached in Appendix A.

Ms. Gretchen Latowsky of FACE (For A Cleaner Environment), a non-profit, community hazardous waste awareness organization headquartered in Woburn, Massachusetts, reported that their organization would prefer to have the Murphy's Waste Oil facility reopened for acceptance of waste oils. Ms. Latowsky mentioned that Murphy's Waste Oil Service, Inc. was considered to be a "service to the community since the Murphy's would keep their facility open on Saturday mornings to accept waste oils from community residents."

During the months of December 1987 and August 1988, CHEE representatives visited the site; their observations have been incorporated in the discussions below. Exterior surface conditions were observed for: evidence of staining, excavation, filling and dumping; the presence of installed underground storage tanks; storage of oils and/or hazardous materials; and other signs of potential contamination. Interior portions of the site were generally inspected by Clean Harbors, Inc. (CHI) personnel.

For purposes of discussion, the site has been divided into three sections: Northern, Central and Southern. These sections on the site are distinguished by a chain-link fence. Figure 5, the Site Plan, illustrates these sections.

Northern Section

The Northern Section is not paved and is referred to by property occupants and site plans (dated in the 1920's) as the "oil yard." A dirt pathway or roadway travels through this Section parallel with the Boston and Maine railroad lines. Five concrete blocks (one-cubic yard in size) are situated at the northwestern-most portion of this Section at the end of the dirt pathway. Seven aboveground storage tanks for temporary waste oil or virgin oil storage are situated in this area as well. The tank locations and sizes of the existing seven tanks and the former 13 tanks are displayed on Figure 5.

The seven aboveground storage tanks are situated on the eastern portion of this Section. The tanks are surrounded by a concrete dike which is constructed two feet above and below the ground surface. No evidence of contamination was encountered during installation of the concrete dike, which occurred in September 1986. Photographs taken during the concrete dike installation verify this information; the photographs are attached as Appendix B.



groundwater flow may have been in a north by northwesterly direction. This situation would have made the easterly abutting property (formerly occupied by the Whitney Barrell Company) hydrologically upgradient.

If pumping activities of both production wells ceased, groundwater would most likely follow the topography of the area and flow in an easterly or southeasterly direction toward the Aberjona River. Information regarding contaminants detected in the production wells is discussed in the section entitled **US-EPA: Contamination of the Aberjona River Basin.**

Two other wells are situated within this portion of the Aberjona River basin. These wells are identified, by the City of Woburn Public Works Department, as public drinking water Wells G and H. These wells are situated approximately one-quarter mile northeast of and hydrologically (and topographically) downgradient from the site. Due to contamination levels detected in these wells, the wells were closed and pumping ceased in 1979.

The nearest actively used public drinking water supplies to the site are located approximately 2.5 miles west of and upgradient from the site. Additional information regarding the closure of Wells G and H and impacts of this contamination relative to the site area is discussed in the section entitled **US-EPA: Contamination of the Aberjona River Basin.**

TOPOGRAPHY and GEOLOGY OF THE SITE

Topographically, the site generally slopes in an easterly direction toward the Aberjona River. The elevation on the western portion of the site is approximately 60 feet National Geodetic Vertical Datum (NGVD) of 1929, while the elevation on the eastern portion of the site is approximately 45 feet NGVD. The south-central portion of the site has a steep acclivity to an elevation of approximately 75 feet NGVD. These topographic features agree with the USGS study previously mentioned.

SITE LOCATION

The site is located at 252 Salem Street and 252 Rear Salem Street in the eastern portion of the City of Woburn, Massachusetts. The general location of the site is illustrated on Figure 1.

The site consists of one parcel of land zoned "industrial-park" which has a total area of approximately 3.4 acres. The City of Woburn Assessor's Office designates the site as Map 16, Block 005, Parcel 41. Site boundaries and other details are shown on Figure 4.

SITE DESCRIPTION

The site is primarily occupied by Murphy's Waste Oil Service, Inc., a waste oil and virgin oil storage facility. The operations of the Murphy's Waste Oil Service, Inc. facility have ceased since the summer of 1987.

In general, waste oils and occasionally virgin oils were transported to the site in bulk loads and temporarily stored on the site in aboveground storage tanks labeled according to the



Massachusetts Department of Transportation regulations for oils (MOO1). Prior to their removal in March 1988, these tanks were located in an area on the northern portion of the site referred to as the "oil yard" (detailed later).

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The Northern Section is not paved and is referred to by property occupants and site plans (dated in the 1920's) as the "oil yard." A dirt pathway or roadway travels through this Section parallel with the Boston and Maine railroad lines. Five concrete blocks (one-cubic yard in size) are situated at the northwestern-most portion of this Section at the end of the dirt pathway. Seven aboveground storage tanks for temporary waste oil or virgin oil storage are situated in this area as well. The tank locations and sizes of the existing seven tanks and the former 13 tanks are displayed on Figure 5.

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An additional two-foot to four-foot earth dike encompasses the tank area and apparently consists of clay and sand. The 13 aboveground storage tanks and a 500-gallon tank truck body were removed in March 1988 from the western portion of this Section; these tanks were located within the earth dike area. Oil staining was observed on most of the former tank fill pipes, the former tank truck body and surrounding soils. An oil-like odor was additionally noted on soils near the tank truck body near the northern earth dike wall.

Soil contamination was encountered below one of the tanks during the tank removal process. The contaminated area appeared to be confined to the immediate vicinity of the tank. The contaminated soils were removed from the site for proper disposal in February 1988. The Uniform Hazardous Waste Manifest for this soil disposal activity is attached as Appendix C.

Materials observed protruding from the earth dike include toys, one-gallon and five-gallon metal containers, a tool box, fence, tree stumps, metal and rubber pipes, wire mesh, wood beams and other miscellaneous debris. No evidence of staining was observed by CHEE representatives on the soils of the earth dike. An empty, crushed 55-gallon plastic drum was additionally located in this area.

In December 1987, thirteen 55-gallon drums were situated along the outside western wall of the concrete dike; eight of the drums were empty, while the remaining drums most likely contained oils. According to CHI representatives, the drums were used for wastes generated during tank cleaning processes on the site. As of February 1988, these drums have been removed from the site for proper disposal.

Fire Department and City Clerk records reviewed indicate that a Certificate of Registration was granted in 1940 for the site for storage of "125,000 gallons." The certificate does not specify material stored, whether storage is in aboveground or underground containers, and the number and sizes of storage containers. Apparently, the seven tanks located within the concrete dike (eastern portion of this Section) have never been used. No additional information was found in these records reviewed indicating the presence of tanks on the site prior to 1940. No evidence of installed underground storage tanks or excavation was observed on this Section of the site.

A City of Woburn sanitary sewer easement traverses the north-central portion of the Northern Section with a west to east orientation. The sewer which occupies this easement originates at the westerly abutting property. The sewer is used by the John J. Riley Tannery and discharges into a main line of the City of Woburn sanitary sewer system. Site representatives indicated that the wastewater in the sewer periodically overflowed. At one point, the pressure of the wastewater in the sewer caused the manhole cover on the site to rise approximately six feet above the ground surface. The volume of wastewater that overflowed on the site was not estimated.

Both the Massachusetts Water Resources Authority (MWRA) sanitary sewer system and City of Woburn sewer system easements are situated approximately 175 feet east of the site. Additional information regarding a DEQE moratorium Administrative Order is attached as Appendix E.



Central Section

The Central Section of the site is occupied by the North Suburban Transportation Company of Woburn, Massachusetts for use as a school bus parking lot. The agreement established between the Murphy's Waste Oil Service, Inc. and the North Suburban Transportation Company was that the North Suburban Transportation Company would occupy the designated area of land (the Central Section of the site) as a Tenant at Will. This agreement was initiated September 1, 1987.

The Central Section is covered by a layer of gravel. The boundaries of the Central Section are defined by the Boston and Maine railroad tracks west of this Section and the easterly abutting Allen Glass and Mirror property.

Topographically, the western and southern portions of this Section have a sharp 25-foot to 30-foot acclivity, while the eastern portion has a sharp 5-foot declivity. This area was filled to the existing level in 1978.

Approximately 50 automobiles, two fuel oil trucks and school buses are parked in this section after school hours. The school buses are refueled daily on school days at approximately 10:00 am or 3:00 pm. Materials located along the perimeter of this section include batteries, tires, piles of brush, 55-gallon drums containing burned rubbish, automobile parts, an old pickup truck with household furniture, and other miscellaneous debris.

A parked trailer, apparently used as the office by the North Suburban Transportation Company, is located on the south-central portion of this section. Immediately south of this trailer is an area that appears to have been formerly used to store a large piece of equipment. Oil staining is present on the exposed soils and no vegetation exists in this 150-square-foot area.

During a site visit by CHEE representatives in November 1987, a representative of the North Suburban Transportation Company was observed burning rubbish in two 55-gallon drums. A liquid was applied to the rubbish through a hose to promote burning. The type of liquid used was not determined during this investigation.

Until March 1988, a partially buried tank was located on the southeastern portion of this section. The tank appeared to have a storage capacity of 275 gallons and was labeled "Waste Motor Oil Only." This tank was used by Murphy's Waste Oil Service, Inc. for community residents to dispose of their waste automotive oils. No staining was observed near the fill pipe for this tank. This tank was also removed from the site in March 1988.

Southern Section

The southern portion of this Section is occupied by a garage. The garage is constructed of steel siding over a four-foot concrete foundation. The floor is also constructed of concrete and reportedly does not contain any floor drains.

From 1979 to the summer of 1987, Murphy's Waste Oil Service, Inc. used the garage as an office and for company truck maintenance. Since the summer of 1987, the facility operations have ceased and the maintenance garage is no longer used. This building is served by an on-site



septic system. CHI representatives reported no staining in the restroom sinks; no other sinks are reportedly located in the building. No problems associated with the septic system associated with this building were reported by Mr. Francis Ryan of the Woburn Board of Health. Information detailing the location of the septic system was not found during this investigation.

The garage is heated by oil which is stored in a 1,000-gallon underground storage tank located at the southeastern corner of the building. No information was available with (Chief Robert Doherty of the Fire Department or found in Fire Department and City Clerk records reviewed) indicating the tank size and installation date. Ms. Joan Murphy, site owner, has a copy of the permit for this tank which was issued in 1979. The fill and vent pipes for the 1,000-gallon underground heating oil storage tank were free of staining. An additional covered pipe was also observed protruding from the ground surface in this area. This pipe is apparently associated with the same underground tank. A copy of the permit for the 1,000-gallon underground storage tank is attached in Appendix D.

The area immediately north of the garage is used for miscellaneous storage including approximately 50 tires, automobile parts, one 35-gallon drum and one 55-gallon drum (both empty), four automobile batteries, pieces of wood and hose. The areas west and south of the garage are well-maintained and vegetated with grass.

An oil-stained area (approximately five feet by one foot) was observed on the pavement southwest of the building. The staining appeared to be confined to the immediate area. Eleven bottles, labeled bleach and containing oil, were in this area as well. As of February 1988, these bottles were moved into the garage. No significant signs of leakage from these containers were observed. No evidence of excavation was observed in this section.

CURRENT and HISTORICAL USES OF THE SITE

Throughout most of its history, the site has been primarily used as a waste oil and/or virgin oil temporary storage facility. Records and plans of the site indicate that an oil yard was located on the Northern Section of the site in the 1920's. Additional information regarding the site indicates that sand and gravel may have been removed from the site at this time. According to Ms. Joan Murphy, site owner, this area was filled in 1950 and then filled again in 1978 to the existing grade. Operations of the waste/virgin oil facility temporarily ceased between 1976 and 1977. At that time, the aboveground storage tanks were empty.

Ms. Rebecca Backman, Attorney with Wright and Moehrke Counselors at Law of Boston, Massachusetts, performed a limited historical summary of the site in response to an US-EPA Request for Information. The Response letter was submitted to the US-EPA on February 9, 1988. The information incorporated below was obtained from this Response letter.

Murphy's Waste Oil Service, Inc. has owned the site facility since July 7, 1977. The current owner of the site land is Old Oil Realty Trust which was deeded in 1980. Apparently, four deeds comprise the existing Parcel 41. In general, prior site owners include various members of the Frank Quinn Family which operated the facility as the Woburn Oil Company. The Woburn Oil Company reportedly began operations in the 1920's and only stored virgin oils. Ms. Mary Quinn, wife of Norman Quinn - former site owner, indicated that waste oils were additionally



accepted onto the site in the mid-1950's. Mr. Albert Shaevel, Joseph Flaherty and Mary Flaherty formerly owned portions of the site not considered as the oil yard.

Mr. William Murphy, a relative of the site owners, leased two of the tanks that were located on the northwestern portion of the Northern Section; these tanks were removed from the site in March 1988. Mr. William Murphy apparently used these tanks since the late 1970's as surplus waste oil storage to the storage facility he owned and operated at another location.

A 1966 aerial photograph of the site area shows seven aboveground storage tanks located in the Northern Section of the site. Significant oil staining of the soils is also evident in this photograph. The staining not only covers the area near the tanks and land east of the tanks, but also the right-of-way from Salem Street to the tank area. The 1966 aerial photograph also shows two contiguous buildings on the southeastern portion of the Southern Section. According to Building Department records reviewed, this structure was a dwelling which was razed in 1976. A Building Permit was issued in 1979 for the construction of a "warehouse" which is described as the garage in the Site Description section of this report. Figure 6 presents this 1966 aerial photograph of the site area.

A 1986 aerial photograph depicts the site with a total of 20 aboveground storage tanks and the existing garage. No significant evidence of the staining, as depicted in the 1966 aerial photograph, is shown. The two aboveground storage tanks shown on the Central Section of the site were relocated to the Northern Section of the site within the concrete dike area. These two tanks were removed from the site in March 1988. The existing concrete dike was installed around the tanks in the tank area in September 1986, subsequent to the March 1986 photograph. As previously mentioned, no signs of contamination were observed during the installation of this concrete dike. Figure 7 represents the 1986 aerial photograph. Additional information regarding former waste oil disposal practices is discussed in the Petroleum and Chemical Spills/Releases section.

CURRENT and HISTORICAL USES OF ADJACENT PROPERTIES

The properties near the site have historically been used for commercial and industrial purposes. Properties which abut the site include the John J. Riley Tannery and the Boston and Maine railroad tracks (west of the site); Toxikon Laboratories (northwest of the site); undeveloped wooded land known as the Wildwood Conservation Corporation property (north of the site); Allen Glass and Mirror - formerly the Whitney Barrell Company (east of the site); residences - one is equipped with garages used for lumber businesses (south of the site); and Alarm Device Supply and Associated Woodworks (the southern side of Salem Street). Figure 8 represents the current occupants of nearby properties and approximate locations of underground storage tanks.

John J. Riley Tannery - 228 Salem Street

This property is identified by the City of Woburn Assessor's Office as Map 16, Block 005, Parcels 95 and 96. This seven-acre property abuts the site on the western side of the Boston and Maine railroad tracks. This property is topographically and hydrologically upgradient from the site.



Since the late 1800's, this property has been used primarily by the John J. Riley Tannery to manufacture leather products by using hides of animals; this business was commonly referred to as leather tanning, tallow rendering, or japanning. Although this property was owned by various members of the John J. Riley Family since the late 1800's, the ownership has changed three times within the past nine years. In 1978, the John J. Riley Company became a division of Beatrice Foods, Inc. In 1983, Mr. John Riley regained ownership of the firm and then, in 1985, sold the tannery to its employees which continue to operate the facility as the John J. Riley Tannery.

Historical references regarding leather manufacturing (tannery) processes indicate that the hides of animals were placed in pits constructed below the ground surface. Various chemicals and preservatives were applied and, in the City of Woburn in particular, groundwater was flushed through the pits for rinsing purposes. This phase of leather manufacturing was typically a three- to six-month process.

Tannery Process and Wastes:

In general, hazardous materials and oils used during the leather manufacturing related processes included various solvents, lacquers and resins which are used in the finishing operation. Other chemicals used in the leather manufacturing operation include:

- ammonium sulfate,
- cyanide-based dyes,
- mercury and chromium compounds,
- naphthalene sulfonic acid,
- phenolic detergents,
- sodium sulfide,
- sodium carbonate,
- sulfuric acid,
- lime, calcium hydroxide or other caustic powders,
- kerosene, oils and emulsifiers,
- and ammonium chloride.

Tannery wastes typically include high levels of: total solids, volatile organic compounds, protein, sodium chloride (salt), total hardness, sulfide, chromium, mercury, and ammonium nitrogen, and a high biochemical oxygen demand (BOD). The pH is between 11 and 12. The odor of tannery waste has been defined as "objectionable" and similar to rotten eggs, or hydrogen sulfide. Other tannery wastes include bones, manure and flesh of the animal skins. Investigation of other tanneries in the area found much of this debris buried either on the tannery property or on nearby properties. This property, in addition to other nearby properties, is currently under investigation by the US-EPA and DEQE due to its proximity to the City Wells G and H; its historical use as a tannery; and former disposal practices of hazardous materials (which are further discussed in the section entitled US-EPA: Contamination of the Aberjona River Basin.

Production Well No. 1:

A production well is located on this property (known as the John J. Riley production well No. 1) and is situated on the eastern-most portion of the property adjacent to the Boston and Maine railroad tracks. Although the well has not been used within the past five to ten years, the well was



used to withdraw water which was utilized within the John J. Riley plant as process water since its installation date of 1945. The average daily gallonage acquired from this well is unknown; however, it has been reported that the well produced an estimated 300,000 gallons per day. The well was installed in "overburden" to a depth of approximately 35 feet below the ground surface. Information relative to the drawdown effects of this well relative to groundwater flow patterns on the site was previously discussed in the section entitled **Topography and Hydrogeology of the Site Area**.

Sludge Disposal Activities:

Situated slightly east of the well is a drainage culvert which discharges into a second drainage culvert located on the abutting railroad property between the tracks and the northwestern site boundary. A DEQE inspection discussion stated that:

"Sludges, which are the skimmings and bottom solids from the waste water catch basins are being stock-piled on-site, on an embankment above the rail-road track and the company's well house [John J. Riley production well No. 1 (sic)]. This stockpile is not covered in any way. Some erosion of the stockpiled sludge is occurring down to the railroad drainage ditch."

The inspection discussion relative to the drainage culvert continued with "this drainage flows south to the wetlands upstream of Whittenmore Pond." The DEQE requested sampling of this stockpiled sludge; the laboratory results are discussed in the section entitled **Department of Environmental Quality Engineering (Northeast Region) Research**.

Tanks:

According to Fire Department and City Clerk records reviewed, this property is equipped with two underground storage tanks: a 5,000-gallon gasoline tank and a 45,000-gallon Bunker Oil (Number Six fuel oil) tank. The Certificate of Registrations were granted by the City of Woburn in 1945, 1946, 1951 and 1974. No information was available with Chief Robert Doherty of the Fire Prevention Office regarding any known releases of oils and/or hazardous materials on this property.

Wildwood Conservation Corporation - Off Olympia Avenue

This 16-acre parcel abuts the northern site boundary and is positioned topographically and hydrologically upgradient from the site. The City of Woburn Assessor's Office identifies this property as Map 16, Block 005, Parcel 42. This property is primarily undeveloped land which was established as the Wildwood Conservation Corporation in 1985.

Production Well No. 2:

A production well (known as the John J. Riley production well No. 2) is located on the southern portion of this property located approximately 200 feet north of the northern site boundary. Although the property is established as the Wildwood Conservation Company, John J. Riley Tannery, Inc. still retains the water rights to this well. The water from this well is used as process water by the tannery.



Historical Dumping:

The US-EPA "has determined that there is an imminent and substantial endangerment due to the release of hazardous substances" on this property. To implement mitigation measures, the US-EPA issued an Order to construct a fence along the property perimeter. The purpose of the fence was to eliminate access to the property and prohibit dumping activities. The hazardous waste release detected on this property resultant of abandoned drums is further discussed in later sections entitled **Petroleum and Chemical Spills/Releases, Department of Environmental Quality (Northeast Region) Research - Woburn and US-EPA: Contamination of the Aberjona River Basin.**

Former Whitney Barrell - 256 Salem Street

This property is identified by the City of Woburn Assessor's Office as Map 16, Block 005, Parcel 37. This property abuts the eastern site boundary and is topographically downgradient from the site. During pumping activities of the John J. Riley production well No. 2, this property is hydrologically at the same elevation as the site. This property is currently occupied by Allen Glass and Mirror. No significant amounts of oils or hazardous materials are used by the Allen Glass and Mirror Company.

Historical Barrel Cleaning Activities:

The Whitney Barrell Company used this property as a 55-gallon drum reconditioning facility. A representative of Aberjona Auto Parts, east of Whitney Barrell, reported that there was always a tremendous number of drums and tanks on the property. To his knowledge, Whitney Barrell not only reconditioned drums on this property, but also reconditioned and dismantled tanks, including underground storage tanks from gasoline stations. The tank and drum cleaning process reportedly created a very strong odor often resembling vinegar and/or solvents. No information regarding the former contents of the drums was known by either the Aberjona Auto Parts representative or the Fire Department and Board of Health officials interviewed. The overall condition of this property was described by former tenants and property abutters as very poor: "the property was always a mess." Figures 6 and 7 provide an aerial representation of this property during the years 1966 and 1986.

Tanks:

A Certificate of Registration, dated 1975, was granted by the City of Woburn to Mr. John Whitney, former Whitney Barrell property owner. The two underground tanks licensed include a 5,000-gallon gasoline tank and a 5,000-gallon diesel fuel tank. No information was found during this investigation indicating that these tanks were ever installed. Additional information regarding this property is discussed in the sections entitled **Petroleum and Chemical Spills/Releases and Department of Environmental Quality Engineering (Northeast Region) Research.**



Juniper Development Group - 60 Olympia Avenue

This property is identified by the City of Woburn Assessor's Office as Map 16, Block 005, Parcel 1. This parcel is situated approximately one-half mile northeast of and hydrologically upgradient from the site. The property is currently owned by the Juniper Development Group which purchased the property from Hemingway Transportation in 1985. Prior to 1985, this property was additionally occupied by United Truck Leasing: both Hemingway Transportation and United Truck Leasing are truck terminals.

Tanks:

In 1963, Hemingway Transportation was granted a Certificate of Registration by the City of Woburn for five underground storage tanks. These underground tanks include one 6,280-gallon gasoline tank, two 5,000-gallon diesel fuel tanks, one 1,000-gallon waste oil tank and one 5,000-gallon Number Two heating oil tank. Additional information regarding the integrity of these tanks and petroleum releases on this property are discussed in the sections entitled **Petroleum and Chemical Spills/Releases** and **Department of Environmental Quality Engineering (Northeast Region) Research**.

Residences - 246, 248 and 250 Salem Street

These properties are respectively identified by the City of Woburn Assessor's Office as Parcels 40, 39 and 38; they abut the southern site boundary and are topographically upgradient from the site. These parcels are primarily used for residential purposes. Parcel 39 is additionally occupied by a garage and a lumber business. Large trucks and other heavy equipment were observed on this property. Piles of debris consisting primarily of scrap metal were observed along the site boundaries adjacent to this property.

Other Nearby Properties

Properties additionally located within a one-quarter-mile radius of the site include a former leather manufacturer (Murrays Leather Company - Corner of Wood Street and Salem Street); distribution centers; automobile parts and repair shops (including the Aberjona Auto Parts, an automobile "junk yard"); a water, soil and hazardous waste testing laboratory (Toxikon Laboratories); and other commercial buildings. Most of these properties are equipped with underground and/or aboveground tanks for petroleum product storage. Additional information regarding properties near the site currently under investigation by the US-EPA and/or DEQE is discussed in their respective sections and the section entitled **US-EPA: Contamination of the Aberjona River Basin**.



PETROLEUM and CHEMICAL SPILLS/RELEASES

This section addresses petroleum and chemical spills and/or releases which have occurred within the immediate vicinity of the site. This information has been compiled from review of the City of Woburn Fire Department records and interviews with Chief Robert Doherty of the Fire Prevention Office; Ms. Rodene Derice; Mr. Kingsley Ndi and Mr. Robert Cleary of the DEQE; Ms. Barbara Newman of the US-EPA; Ms. Joan Murphy, site owner, for spills/releases relative to the site. The spills and/or releases discussed below are shown on Figure 4.

Diesel Fuel Spill - Site (Central Section)

On December 17, 1987, CHEE representatives were conducting a site investigation on the Northern Section of the site and momentarily left the site between 9:30 am and 10:00 am. Upon their return, an estimated 100 to 150 gallons of diesel fuel had been released to the surface soils on the Central Section of the site from a North Suburban Transportation Company diesel fuel delivery truck.

Apparently, the diesel fuel release occurred during fueling of the school buses operated by the North Suburban Transportation Company. Several puddles of free-floating product were observed in the area of the spill. Cleanup measures undertaken by representatives of the North Suburban Transportation Company consisted of applying Speedi-Dri to the spill area and utilizing a "shop-vac" to retrieve the spilled product.

On December 18, 1987, CHEE representatives returned to the site to continue the investigations. Upon their arrival at approximately 9:00 am, a load of stone was being applied to the site in the area of the spill. A backhoe was used to apply the load of stone which consisted of approximately 15 to 20 cubic yards. The newly applied stone occupies approximately 50 feet by 75 feet. The spill area is on the north-central portion of the site near the chain-link fence between the Central and Northern Sections.

CHEE notified Ms. Joan Murphy (site owner) on December 17, 1987 and December 18, 1987 of these observations. Ms. Murphy was never contacted by the North Suburban Transportation Company regarding this spill. On December 18, 1987, Ms. Murphy contacted representatives of the North Suburban Transportation Company to acquire the details of the spill and provide information relative to proper cleanup measures (not utilized by North Suburban Transportation). North Suburban reported to Ms. Murphy that 10 to 15 gallons of diesel fuel were released to the site. In addition, two 30-gallon garbage containers of contaminated soil/Speedi-Dri were removed from the site and transported (without proper manifesting) to the North Suburban Transportation Company garage in Woburn, Massachusetts. CHI offered to properly dispose these soils provided North Suburban returned the containers to the site; they did not respond to this offer.



Gasoline/Kerosene Spill - Site (Central Section)

During a visit by a CHEE representative on December 7, 1987, a gasoline or kerosene spill was noted. This spill area was wet and occupied approximately three feet in diameter on the northern-most portion of the Central Section of the site (near the gateway of the chain-link fence). Site representatives had no information regarding this spill.

Waste Oil Deposition - Site (Northern Section and Right-of-Way)

As evidenced in the 1966 aerial photograph (attached as Figure 6), waste oils were applied to site soils. The soil staining not only covered the area near the tanks on the Northern Section but also the right-of-way through the site from the Northern Section to Salem Street. The staining also extended to the land east of the tanks on the site.

Oil deposition to property soils and nearby roadways was a common practice prior to the 1980's for most waste oil facilities. In fact, in 1978, the DEQE - Division of Water Pollution Control implemented a policy limiting land spreading of waste oils to the period of May 15 to October 15. In the early 1980's, the DEQE - Division of Solid and Hazardous Waste was formed and, under their jurisdiction, this practice of oil deposition on land was prohibited. Ms. Joan Murphy (site owner) reported that this method of disposal by Murphy's Waste Oil Service, Inc. has not occurred since 1979. A copy of a letter from the DEQE - Division of Water Pollution Control to a nearby waste oil facility explaining these policy limitations is included in Appendix E.

Abandoned Drums - Wildwood Conservation Corporation Property

The US-EPA, the DEQE and City of Woburn Representatives have performed numerous investigations and property visits relative to dumping activities and extensive contamination of underlying soils and groundwater on this property.

In the late 1970's, representatives of the US-EPA and DEQE responded to a complaint of abandoned drums on this property. Upon inspection, an estimated 15 to 20 drums, 55-gallons in size, were abandoned on this property adjacent to the Boston and Maine railroad tracks. The drums were empty at the time of their inspection.

An investigation, conducted by Woodward-Clyde Consultants performed in 1984 as reported by the US-EPA, suggested that the Wildwood Conservation Company property (known then as the Beatrice Foods site) was used for storage of large tanks and perhaps drums. The report implied that the "two companies located south of the Wildwood Conservation Corporation property (sic): Whitney Barrell Company and Murphy Waste Oil" were the source of these large tanks and drums. This implication was based on review of historical aerial photography (1966 to 1983) from which the following was obtained:

"The existing unpaved access road was evident in past aerial photographs as were additional trails leading from both the Whitney Barrell and Murphy Waste Oil properties. Greater use of these trails was apparent from 1966 to 1969 than in 1978 to 1983."



Ms. Joan Murphy, site owner, reported that she remembered that those drums were there in the 1950's.

Diesel Fuel/Motor Oil/Waste Oils - Juniper Development Group

According to Fire Department records reviewed, activities occurring on the property in the summer of 1986 included the removal of three 30-year-old, 6,000-gallon underground storage tanks; one tank was observed leaking diesel fuel and product was observed on the groundwater in the excavated trench area. Installation of monitoring wells by an environmental consulting firm was subsequently required by the DEQE to assess the extent of contamination.

In the winter of 1987, a 1,000-gallon vertical aboveground storage tank exploded and released motor oil onto the property surface. In addition, Chief Doherty reported that a number of 55-gallon drums containing waste motor oil were observed leaking on the southern portion of the property.

The US-EPA issued an order in February 1986 for the Olympia Nominee Trust to "stabilize drums of hazardous waste at their Woburn, MA, property and to study the site to protect the public from the contaminants." "Trichloroethylene, tetrachloroethylene, 1,1-dichloroethane, 1,1,1-trichloroethane, toluenes, xylenes, polychlorinated biphenyl compounds (PCBs), and chlordane have been found in soil and drums at the site." The US-EPA discovered 12 exposed drums containing these materials in April 1985. As of February 1987, this property has been considered by the EPA as part of the Wells G & H Superfund Site in Woburn." Additional information relative to the Wells G & H Superfund Site is discussed in the section "US-EPA: Contamination of the Aberjona River Basin."

Unknown Chemical Releases - Former Whitney Barrell

Chief Robert Doherty of the City of Woburn Fire Prevention Department reported that within the past 20 years five chemical related fires occurred on this property. Chief Doherty additionally reported that a "colorful liquid" was released from the building during one of the more serious fires (which occurred between 1980 and 1982). Ms. Rodene DeRice of the DEQE Northeast Region stated that a Phase II - Full Evaluation study was recently completed for this property and that this report has not yet been reviewed by the DEQE.

DEPARTMENT OF ENVIRONMENTAL QUALITY ENGINEERING (NORTHEAST REGION) RECORDS RESEARCH

The Department of Environmental Quality Engineering (DEQE) Oil and Hazardous Material Incident Response, RCRA Generator and Site Assessment Files for the City of Woburn were reviewed by a CHEE representative on December 21, 1987 and October 14, 1988. A review of the DEQE Spills and Sites Databases, the DEQE List of Confirmed Disposal Sites and Locations to be



Investigated (dated October 15, 1988), and the RCRA Generator/Transporter List was additionally performed. Additional information relative to most of the following properties discussed is addressed in the section entitled **US-EPA: Contamination of the Aberjona River Basin.**

Wells G and H - Aberjona River Valley

Wells G and H are listed in the Sites Database, addressed Salem and Washington Streets, as Phase III project status and supervised by Ms. Rodene DeRice of the DEQE.

Aberjona Auto Parts - 278 Salem Street

This property is located approximately 500 feet east of and downgradient from the site. This property was listed in the Sites Database as "inactive." Additional information regarding the four monitoring wells installed on this property by the US-EPA relative to the US-EPA study area are further discussed in the section entitled **US-EPA: Contamination of the Aberjona River Basin.**

Whitney Barrell - 256 Salem Street

As previously mentioned, a Phase II - Full Evaluation report for this property has been submitted to the DEQE. According to Ms. Rodene Rice of the DEQE, this report has not yet been reviewed. In January 1986, an estimated 10 gallons of Number Two oil was released on this property. No additional information regarding cleanup of this release was found in DEQE records reviewed.

John J. Riley Tannery - 228 Salem Street

As previously discussed, this property abuts the site on the western side of the Boston and Maine railroad tracks. This property is listed on the Sites Database as "inactive." The Spills Database listed this property in December 1986 as having a 500-gallon Number Six fuel oil release occur on this property. Imperial Transportation was reported as the Responsible Party for this release.

Additional DEQE records available for this property included a Formal Report of Analysis for a composite of two samples of sludge collected from a catch basin located on this property. The catch basin is apparently located along the eastern boundary of the property near the railroad tracks. This sample was collected as a result of the DEQE inspection discussed in the preceding section entitled **Current and Historical Uses of Adjacent Properties.**



The sludge sample collected from the catch basin was laboratory analyzed for E.P. Toxicity eight priority pollutant metals plus hexavalent chromium. The sludge sample was apparently analyzed by the analytical laboratory as a water sample and compared with US-EPA Safe Drinking Water Act (SDWA) Maximum Contaminant Level (MCL) guidelines. The only metal detected was total chromium at a concentration of 2.3 parts per million (ppm). The MCL for that constituent is 5.0 ppm.

The purpose of performing an E.P. Toxicity test on the sludge sample was apparently to determine whether any of the priority pollutant metals were leaching from the pile of sludge deposited on the property boundary and migrating down the embankment toward the railroad tracks, where the John J. Riley production well No. 1 is situated. The DEQE files indicate that additional laboratory analyses were performed on the sludge sample but were not submitted to the DEQE since the DEQE had not requested it.

According to Ms. Rodene DeRice of the DEQE, the US-EPA is responsible for activities performed on this property since it is currently under investigation as a potential source to the contamination of the City wells G and H.

Wildwood Conservation Corporation - Off Olympia Avenue

This property abuts the site to the north. No additional information, especially with regard to the abandoned drums found on this property, was available in these references reviewed.

Juniper Development Group - 60 Olympia Avenue

Sixty Olympia Avenue is located approximately one-half mile northeast of and upgradient from the site. This property is currently owned by the Juniper Development Group which purchased the property in February 1985. This property has been listed on the DEQE List of Confirmed Disposal Sites and Locations to be Investigated. This lists a petroleum release for the Olympia Nominee Trust property located at 60 Olympia Avenue. The cleanup status is Phase II by the responsible party. The Spills Database listed this property in February 1986 as having twelve 55-gallon drums of waste oil abandoned on the property. No additional information regarding the release or any other activities on this property was found in DEQE files reviewed.

Abandoned Drums - Mishawum Road Property

In May 1979, 184 55-gallon drums containing polyurethane and toluene diisocyanate were found on a vacant lot, located approximately one and one-quarter miles north of and topographically upgradient from the site. The property is located on Mishawum Road and is owned by the Massachusetts Bay Transit



Authority (MBTA). The DEQE records reviewed indicate that: "The drums were removed by unknown parties during negotiations with the DEQE over removal of these drums. This incident prompted the DEQE to sample the nearest downgradient water supply, Woburn's municipal water supply from Wells G and H, as a precautionary measure." Additional information regarding this discovery is addressed in the section entitled **US-EPA: Contamination of the Aberjona River Basin.**

US-EPA: CONTAMINATION OF THE ABERJONA RIVER BASIN

As previously mentioned, the 184 drums of polyurethane and toluene diisocyanate found on the Mishawum Road property (May 1979) prompted DEQE to sample the nearest downgradient water supply, Woburn's municipal water supply Wells G and H, as a precautionary measure. Prior to this DEQE sampling program of Wells G and H, area residents often complained about the water quality in the wells. Apparently, the parameters tested indicated elevated levels of manganese and iron, which often result in an unpleasant taste and/or odor of the water. Since this data correlated with the complaints reported, no additional testing was performed.

During the DEQE sampling program of City wells G & H, elevated levels of chlorinated volatile organic compounds were detected. Based on the levels detected, both wells were subsequently shut down by Order of the US-EPA. Health risks relative to these levels detected were then assessed.

"During the mid to late 1970's, the local community became concerned over the incidence of child-hood leukemia, particularly in the Pine Street area of east Woburn. After DEQE detected volatile organic contamination in Wells G & H in 1979, some members of the local community suspected that the incidence of leukemia was linked to the possible exposure to volatile organic chemicals through the Wells G & H water supply. The Massachusetts Department of Public Health (MDPH) began investigating the problem in December 1979. A higher than expected rate of childhood leukemia was confirmed by the MDPH in April 1980."

In May 1982, "a number of citizens whose children had developed leukemia filed a civil lawsuit against two companies [W.R. Grace/Cryovac Division and Beatrice Foods (now known as the John J. Riley Tannery)] suspected of contributing contamination to Wells G and H." In April 1985, the same citizen's group brought civil lawsuits against a third company: Uni-first Corporation.

Investigation by the US-EPA revealed that two major Superfund Sites exist within the Aberjona River Basin: The Industriplex Site, approximately two miles north of and upgradient from the Murphy Waste Oil Service, Inc. property; and the Wells G and H Site (referred to in this report as the US-EPA study area).

This US-EPA study area is "geographically defined as the valley and surrounding uplands associated with the Aberjona River Basin (sic) south of Interstate 95 and north of Salem Street. The aquifer area is hydrologically defined as the area (vertically and laterally) that is potentially



capable of supplying water to Wells G & H under pumping conditions." The US-EPA study area is somewhat larger than the aquifer area and consists of approximately 450 acres.

The US-EPA developed a "Hazard Ranking System (HRS) score" for the US-EPA study area utilizing available preliminary investigations and analytical data provided by the DEQE. The US-EPA study area was ranked 312 out of 770 sites on the National Priorities List.

In May 1983, three Administrative Orders were issued by the US-EPA to W.R. Grace and Company, Inc. - Cryovac Division (located approximately one mile northeast of the site on the eastern side of the Aberjona River); Uni-first Corporation - formerly Interstate Uniform Services Corporation (located approximately one mile north of the site on the eastern side of the Aberjona River); and Beatrice Foods, Inc. - for the Wildwood Conservation Corporation property (abuts the northern site boundary and is on the western side of the Aberjona River).

From the late-1970's to present, the US-EPA has contracted numerous environmental consulting firms to perform assessment investigations of the US-EPA study area. These investigations not only included historical investigations and inspections of the US-EPA study area, but also groundwater, surface water and sediment sampling, and installation of groundwater monitoring wells throughout the US-EPA study area. The purpose of these investigations was to address the degree and extent of contamination existing within the US-EPA study area; contaminant pathways and mechanisms; and a description of groundwater plumes, areas of contamination and their sources.

John J. Riley Production Wells No. 1 and No. 2

Volatile organic contaminants present in the John J. Riley production wells No. 1 and No. 2 include low part per billion (ppb) concentrations of 1,1-dichloroethane, trans-1,2-dichloroethene, 1,1,1-trichloroethane, trichloroethene and tetrachloroethene.

Two of the 13 monitoring wells located on the Wildwood Conservation Corporation property (identified by the US-EPA as BW-3 and BW-4) were installed between the site boundary and the John J. Riley production well No. 2. Monitoring well BW-4 is situated approximately 15 feet north of the site boundary, while BW-3 is situated approximately 20 feet northeast of the site boundary. Total volatile organic compounds detected in these wells were between 11 ppb and 100 ppb in BW-4 and between 101 ppb and 500 ppb in BW-3. The predominant compounds detected include trichloroethene and tetrachloroethene; however, low levels of the compounds present in the John J. Riley production wells were also present in the groundwater samples of these monitoring wells.

US-EPA: REQUEST FOR INFORMATION

On December 31, 1987, the US-EPA issued a Request for Information for "certain activities occurring at Murphy's Waste Oil Service, Inc. (sic)" at 252 Rear Salem Street. The purpose of the Request was for the US-EPA to acquire additional information pursuant to the "source, extent and nature of the release or threatened release of hazardous substances, pollutants or contaminants, or hazardous wastes on or about the Wells G & H Superfund Site" (the US-EPA study area). This Request for Information was issued to the owners of all properties located within the one-square-mile US-EPA study area.



Wright and Moehrke Professional Corporation, Counselors at Law, responded to this Request for Information as representatives for Murphy's Waste Oil Service, Inc. The Response letter was submitted to the US-EPA on February 9, 1988.

SUMMARY AND EVALUATION

The site has primarily been used as a bulk oil storage facility from the 1920's to 1987. In March 1987, the 13 aboveground storage tanks were removed from the site for proper disposal; seven new, unused aboveground storage tanks remain on the site within a concrete-diked tank farm. Only one underground storage tank is present on the site and is used for storing heating oil for the on-site garage. The tank was installed in 1979.

Releases of petroleum products have historically occurred on the site. Known releases include:

- land spreading of oils on the site until 1979 for dust control measures (this was a DEQE approved method until, at least, 1979);
- a 150-gallon release of diesel fuel to surface soils on the central portion of the site in 1987 (cleanup measures by the responsible party (a site tenant) were unsatisfactorily performed);
- an unknown quantity of either diesel fuel or gasoline product on the central portion of the site in 1987 (since the bulk oil facility was inactive at that time the responsible party is most likely a site tenant);
- and the central portion of the site was apparently used in the 1950's as an "oil pit" (no further documentation or other reports were found to support this statement).

Abutting developed properties are occupied by a tannery, a former drum and tank reconditioning facility, a railroad line and residences. Since the late 1800's, the tannery has been manufacturing leather products. Historically, the manufacturing process involved chemical applications to the product in below ground pits. Apparently, groundwater was flushed through the pits for rinsing purposes. Waste disposal practices by the tannery included dumping some of the waste products and sludges on the property. It is possible that surface water runoff from this upgradient property may be contaminated and impact the site. Wastewater from the tannery is discharged to a sewer system which traverses a portion of the site. The sewer manhole cover on the site was once observed six feet above the ground surface from sewer overflow; sewer overflows have periodically occurred on the site.

The former drum and tank reconditioning facility apparently rinsed the residual oils and hazardous materials from the tanks and drums with a vinegar and/or solvent solution. The discharge point of the spent solution was not discovered during this investigation. The City of Woburn Fire Department reported that they had responded to several chemical-related fires on this property. One of the more serious fires involved a "colorful liquid" that was released from within the building. This property is currently under investigation by the DEQE for evidence of contamination. The Phase II - Full Evaluation report for this property was submitted to the DEQE for review in January 1989; the study has not yet been evaluated by the DEQE, or CHEE.



The site is situated within a US-EPA study area which encompasses one square mile. The US-EPA became involved in this area based on the levels of chlorinated solvent contamination encountered in two municipal drinking water wells. The wells are situated approximately one quarter of a mile from the site. Although the contamination was discovered in 1979 and the drinking water wells were deactivated, the source(s) of the contamination have not been verified.

It appears that a major contributing factor to the drinking water well contamination is the historical dumping activities on the 16-acre undeveloped property which abuts the northern site boundary. A series of subsurface investigations have been conducted on the property indicating elevated levels of chlorinated solvent contamination. Although this property is positioned hydrologically upgradient from the site, it is likely that most of the contamination in the groundwater is intercepted by pumping activities of a large production well on this property (300,000 gallons per day). During pumping activities of this well, groundwater flow patterns on the site are altered, thereby, making the tannery and the former tank and drum reconditioning properties hydrologically upgradient from the site. A City of Woburn official indicated that the tannery property was recently implicated by the US-EPA for contributing to the contamination of nearby drinking water wells.

CONCLUSIONS

Based on the findings of this investigation, it appears that the site may be contaminated from petroleum products as well as hazardous materials. The source of the petroleum contamination is most likely attributed to historical uses of the site by the bulk oil facility and a site tenant. The source of the non-petroleum contamination (including hazardous materials) is most likely from releases and discharges of these materials on the site and from off-site sources. Further investigation of the site soils and groundwater for evidence of contamination should be performed.

RECOMMENDATIONS

A Phase I - Site Investigation assessment should be conducted on the site. The subsurface investigation should be performed to evaluate petroleum and/or hazardous material contamination that may be present in site soils and groundwater. Investigation points should be positioned to assess: the extent of contamination present on the site from on-site uses of petroleum products; the impact on the site of releases of these materials on nearby properties; the impact of pumping activities on the site groundwater flow patterns by the nearby production well; and whether releases on the site migrated to off-site properties.

The Phase I - Site Investigation assessment should be modified to include the following:

1. Surface soil and surface water, if any, samples should be collected in the vicinity of the sewer easement which periodically overflowed tannery wastewater. The samples should be submitted for laboratory analysis for evidence of contamination.

2. An air-monitoring program for the site should be implemented to determine whether the air emissions from the tannery, which resemble hydrogen sulfide, are impacting the air quality on the site.
3. Review of the Phase II - Full Evaluation report for the abutting property, occupied by a former drum and tank reconditioning facility, should be performed prior to positioning the investigation points and implementing the sampling program. The sampling program for the site should coincide with the contaminants, if any, detected on this property.
4. The sampling program for the on-site investigation should coincide, at a minimum, with the parameters tested by the US-EPA for the contamination encountered on nearby properties and the drinking water supplies. Data from this modified program will be necessary in evaluating the on-site contaminants, if any, relative to the levels of contaminants in the drinking water supplies.
5. In accordance with the Massachusetts Contingency Plan (effective October 3, 1988) a Risk Assessment study should be performed on the site. The sampling parameters necessary for a full evaluation should be incorporated. This study is necessary to evaluate the potential risk to human and non-human receptors from contamination emanating from the site and nearby properties. A key member of the Risk Assessment staff has performed an extensive wetland assessment of the site area for the US-EPA.
6. The CHEE remedial staff should incorporate any sampling parameters or testing requirements in the event that a remedial cleanup program for the site should be necessary. Acquiring this data during the Phase I - Site Investigation assessment will allow the CHEE remedial staff to prepare an accurate and thorough proposal for expedient DEQE approval.

LIMITATIONS

This Preliminary Site Assessment report was conducted in accordance with the 1983 "Massachusetts Oil and Hazardous Material Release Prevention and Response Act," of the Massachusetts General Laws and the Massachusetts Contingency Plan, effective 1988. The DEQE Guidance Policy 7 (dated June 22, 1987) and the updated Interim Policy (dated December 22, 1987) were used as guidelines during this investigation.

The purpose of this report was to assess the physical characteristics of the site with respect to the presence of oil or hazardous materials, as defined in the Massachusetts General Law, Chapter 21E. The recommendations presented in the report were based solely upon the service described therein, and not on scientific tasks or procedures beyond the scope of the services described herein. This study and report have been prepared on behalf of and for the exclusive use of Clean Harbors, Inc. for use as an environmental evaluation of the site. No other warranty, expressed, written or implied, was made.



Murphy's Waste Oil Service, Inc.
January 16, 1989
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CHEE will prepare a proposal detailing the additional work recommended above. If there are any questions or additional information is required, please feel free to call (617) 849-1200.

Sincerely,

Sherri L. Walker
Senior Environmental Scientist

Joseph E. Higgins
Manager, Site Investigations

William J. St. Hilaire, P.E.
Vice President

mac/SLW:Disk 1
QC:WJH/TEH/BEC/CHK

LIST OF CONTACTS

1. Ms. Joan Murphy, Site Owner, Murphy's Waste Oil Service, Inc., Woburn,
2. Mr. Francis Ryan, Acting Health Agent and Chairman, Board of Health, City of Woburn
3. Chief Robert Doherty, Fire Prevention Officer, City of Woburn Fire Department
4. Ms. Lee Garvey, Clerk, City of Woburn Conservation Commission
5. Ms. Carrol Cogan, Clerk, Engineering Department, City of Woburn
6. Mr. Robert Simonds, Superintendent, City of Woburn Public Works Department
7. Mr. Robert Cleary, Environmental Engineer, Department of Environmental Quality Engineering - Division of Hazardous Waste, Boston, Massachusetts
8. Ms. Rodene DeRice, Environmental Engineer, Department of Environmental Quality Engineering - Division of Hazardous Waste, Region I, Woburn, Massachusetts
9. Mr. David Diorio, Owner of Diorio Auto Service (employed in site area), Woburn, Massachusetts
10. Mr. Norman Saunders, General Manager and Site Area Occupant, Aberjona Auto Parts, Woburn, Massachusetts
11. Ms. Gretchen Latowsky, President, For A Cleaner Environment (FACE), a hazardous waste awareness community organization, Woburn, Massachusetts
12. Mr. Kingsley Ndi, Environmental Engineer, Department of Environmental Quality Engineering - Hazardous Waste Division, Region I, Woburn, Massachusetts
13. Ms. Barbara Newman, Project Manager, United States- Environmental Protection Agency, Boston, Massachusetts
14. Ms. Mary Quinn, Family Relative of the Murphy's and former Site Occupant, Westford, Massachusetts



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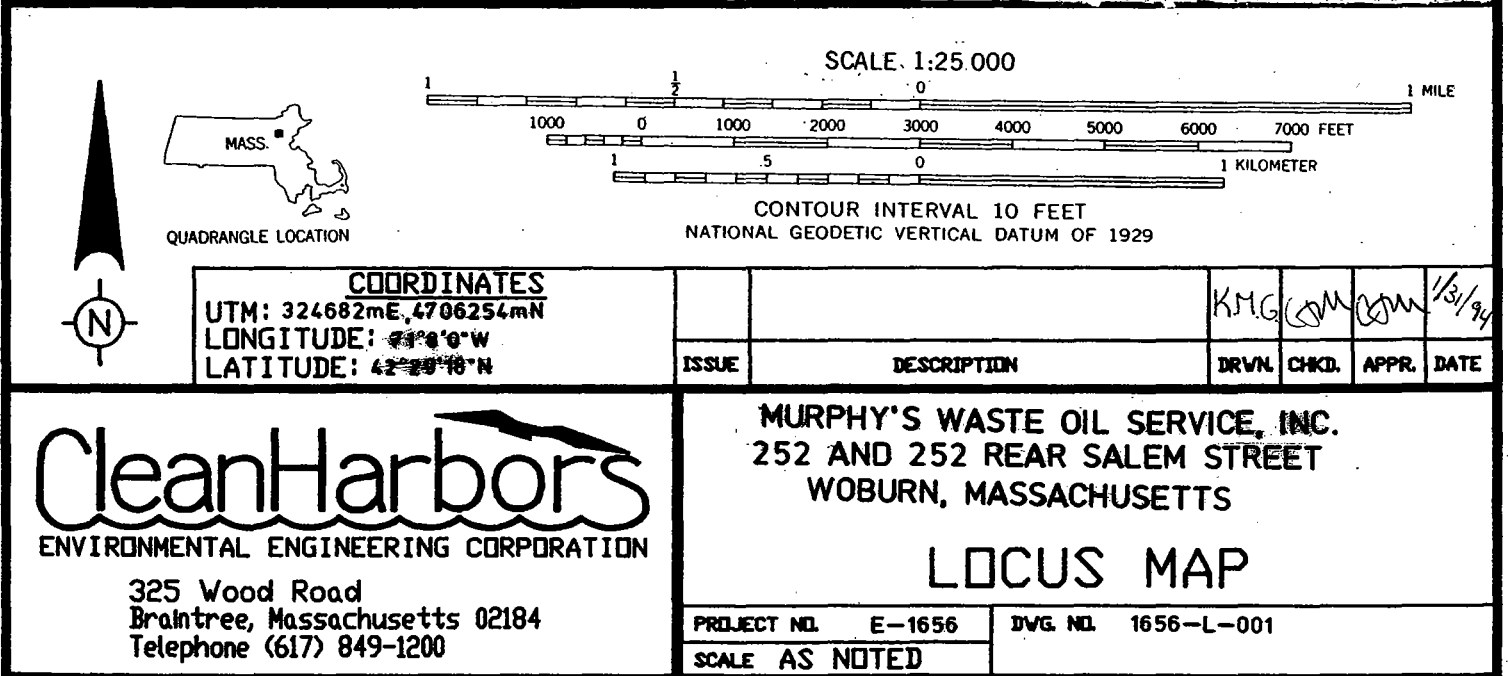
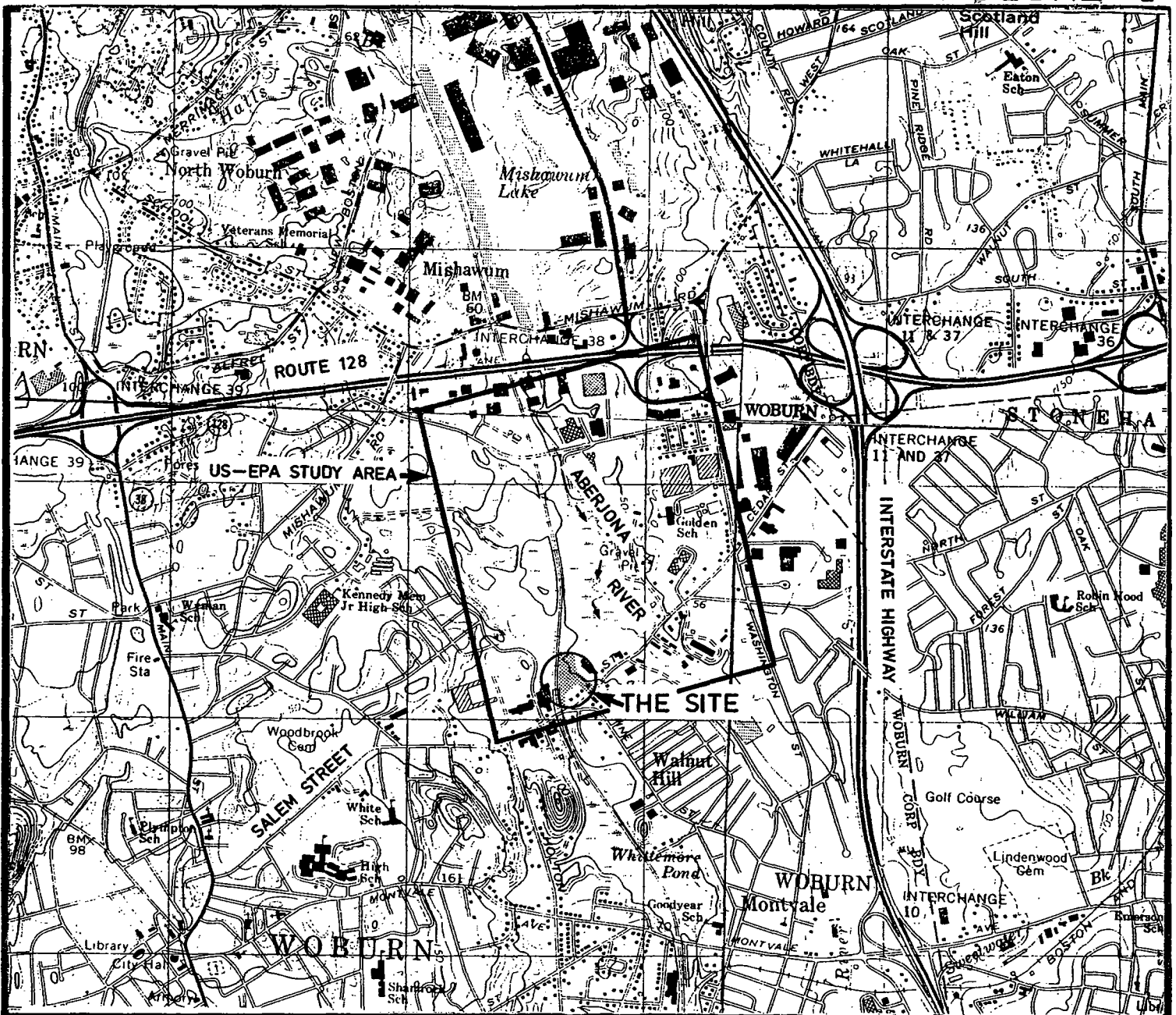


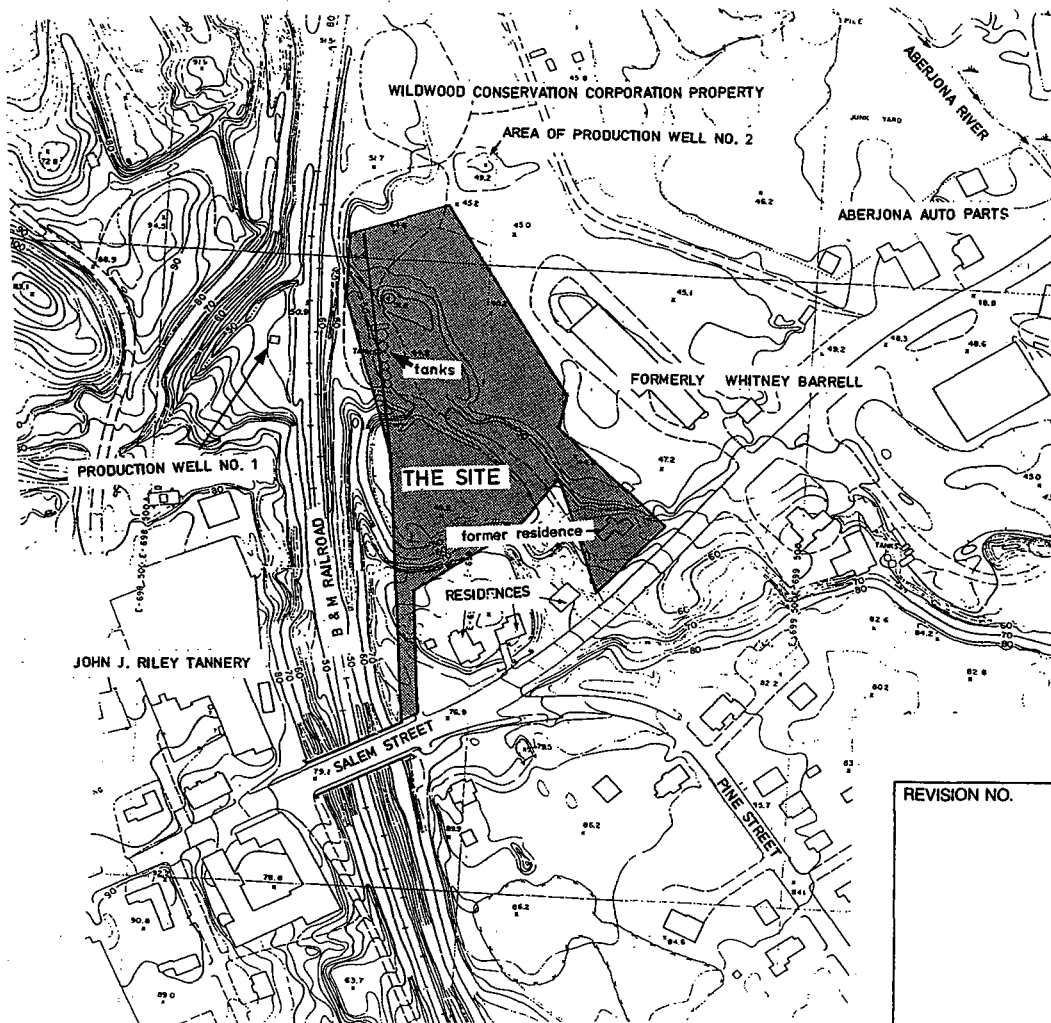
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22. City of Woburn Atlas, dated 1889, available at the City of Woburn Public Library
23. "Hazardous Wastes in Woburn - Department of Urban and Environmental Quality," dated May 1980, prepared by Tufts University, pg. 32, available at the City of Woburn Public Library
24. City of Woburn Oils and Hazardous Materials Incident Response, RCRA Generator and Site Assessment Files, **Spills Database** (dated 07/09/88), **Sites Database** (dated 07/07/88), Department of Environmental Quality Engineering, Northeast Region, Woburn, Massachusetts
25. **List of Confirmed Disposal Sites and Locations to be Investigated**, prepared by the Department of Environmental Quality Engineering Division of Hazardous Waste, dated October 15, 1988
26. **Industrial Water Pollution - Origins, Characteristics, and Treatment**, dated 1977, by Nelson L. Nemerow of Syracuse University, pgs. 334-340
27. "Woburn Administrative Order Docket No. 619," dated May 12, 1986, from the DEQE - Division of Water Pollution Control, available at the City of Woburn Building Department
28. US-EPA **Environmental News**, 12/16/85, 02/10/86, 02/18/87
29. **Area of Influence and Zone of Contribution to Superfund-Site Wells G and H**, dated 1987, prepared by the United States Geological Survey for the US-EPA, Water-Resources Investigations Report 87-4100
30. **Scope of Work for a Remedial Investigation at Wells G & H Site, Woburn, Massachusetts**, dated August 2, 1984, prepared by the NUS Corporation - Superfund Division for the Region I US-EPA

LIST OF REFERENCES (Cont.)

31. **Wells G & H Site Remedial Investigation Report, Part I, Woburn, Massachusetts, Volumes I - V, dated October 17, 1986, prepared by the NUS Corporation - Superfund Division for the Region I US-EPA**
32. **United States Geological Survey Topographic Map, Wilmington, Massachusetts Quadrangle (dated 1965, revised 1979) and Lexington, Massachusetts Quadrangle (dated 1971)**
33. **"Response to US-EPA Request for Information," dated February 9, 1988, prepared by Rebecca Backman of Wright & Moehrke of Boston, Massachusetts for Murphy's Waste Oil Services, Inc. and submitted to the US-EPA - Massachusetts Waste Management Section, Waste Management Division**





VERTICAL DATUM IS MEAN SEA LEVEL

MAP DATED APRIL 1966

REVISION NO. DATE

Clean Harbors
ENVIRONMENTAL ENGINEERING CORPORATION
325 Wood Road
Woburn, Massachusetts 02094
Telephone 617/949-1200

PROJECT NO. E - 1656

SCALE 1" = 200'

PREPARED

APPROVED

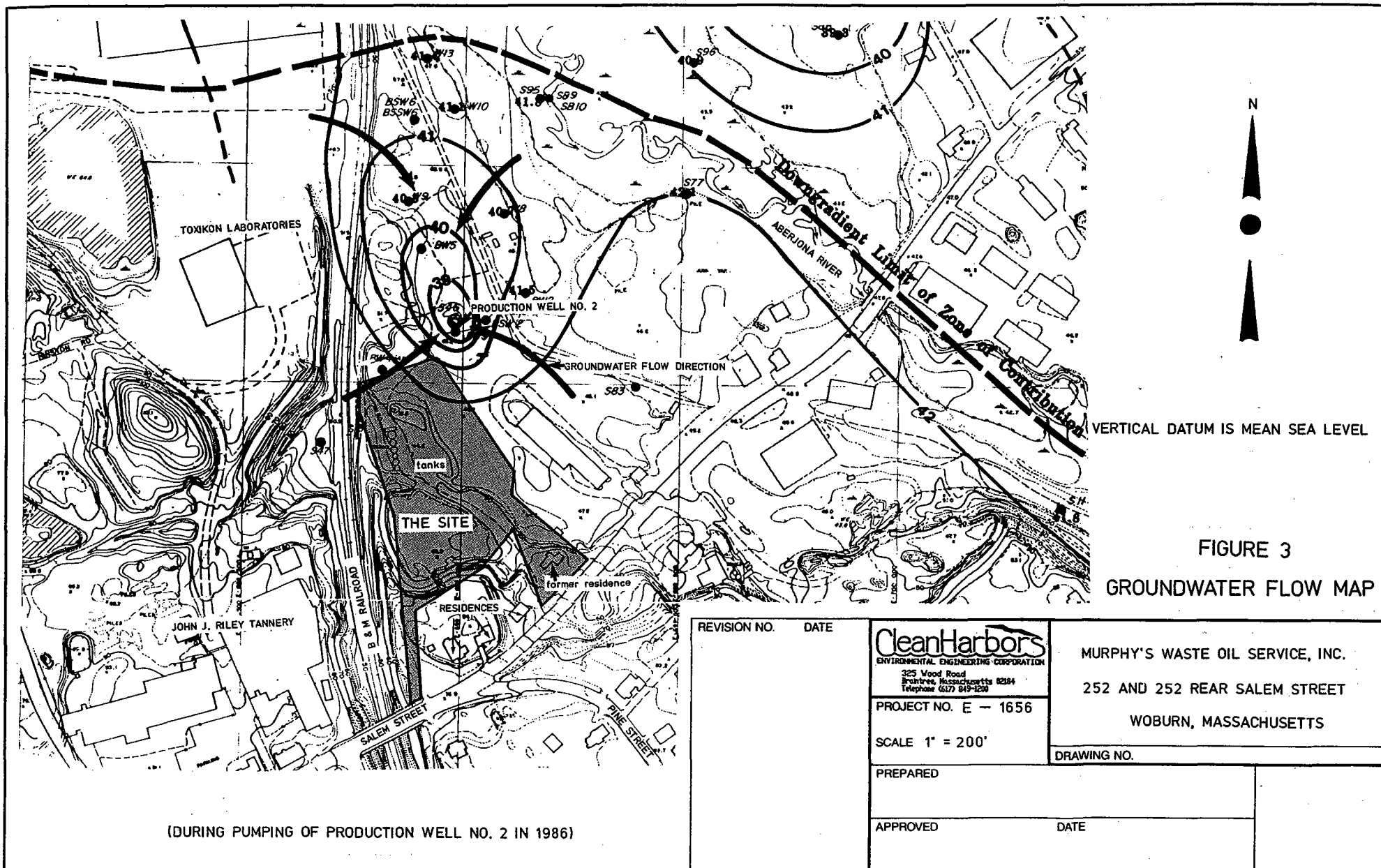
FIGURE 2 TOPOGRAPHY MAP

MURPHY'S WASTE OIL SERVICE, INC.

252 AND 252 REAR SALEM STREET

WOBBURN, MASSACHUSETTS

DATE



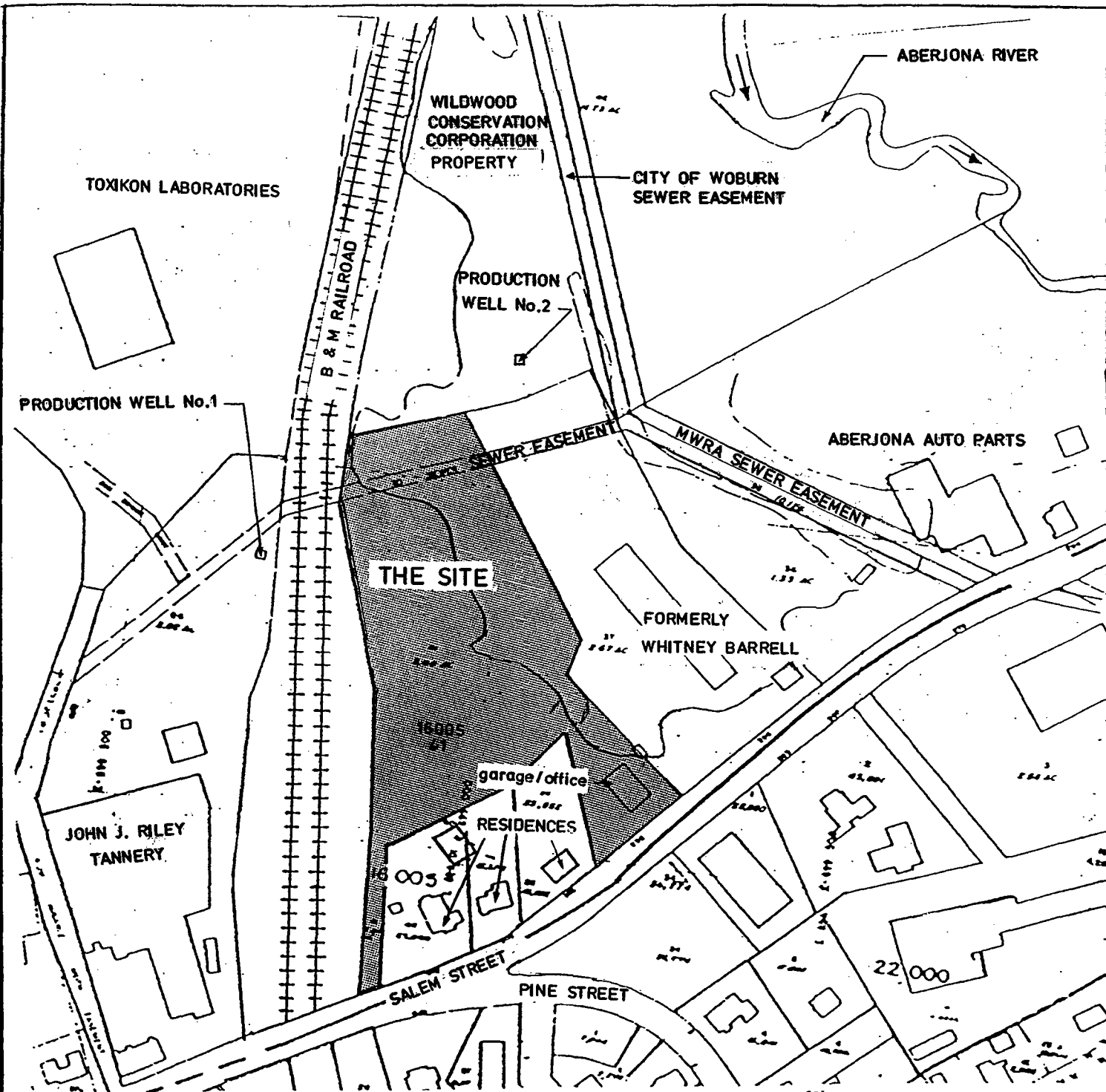


FIGURE 4 SITE AND ADJACENT PROPERTIES



CleanHarbors
ENVIRONMENTAL ENGINEERING CORPORATION

325 Wood Road
Braintree, Massachusetts 02184
Telephone (617) 849-1200

PROJECT NO. E - 1656

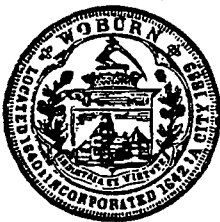
SCALE 1" = 200'

MURPHY'S WASTE OIL SERVICE, INC.

252 AND 252 REAR SALEM STREET

WOBURN, MASSACHUSETTS

DRAWING NO.



City of Woburn
Massachusetts

Telephone 935-1636

ROBERT E. DOHERTY
CHIEF OF DEPARTMENT

FIRE DEPARTMENT

124 Main Street - P. O. BOX 99
Woburn, Massachusetts 01801

December 1, 1982

Department of Environmental Quality Engineering
Division of Hazardous Wastes
One Winter Street
Boston, Massachusetts 02108

Re: Hazardous Waste Transportation
License Application
Murphy's Waste Oil Service

Dear Sir:

Mrs. Patricia Brady, director of the Woburn Conservation Commission, and I visited the waste motor and fuel oil facility in the rear of 252alem Street on Tuesday, November 30, 1982. We spoke with both John and William Murphy, the owners, who provided us with a tour and description of their operation at this location. We also reviewed their contingency plan submitted to the Fire Department on November 19, 1982.

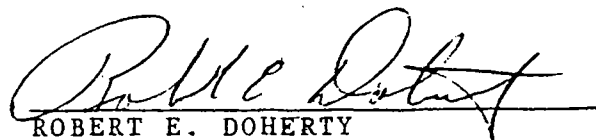
The Murphy family has conducted a waste oil business at this location for many years and in searching our files, I am unable to find a single incident where the department responded to this location.

Speaking with the fire prevention officer, Captain Robert MacDowell, he also has never had any problem with this location and has found the Murphy family to be very co-operative in the past.

The Woburn Fire Department has no objection to the issuance of a Hazardous Waste Transportation License to Murphy's Waste Oil Service. The operation is in compliance with the requirements of the department and appears to be well conducted.

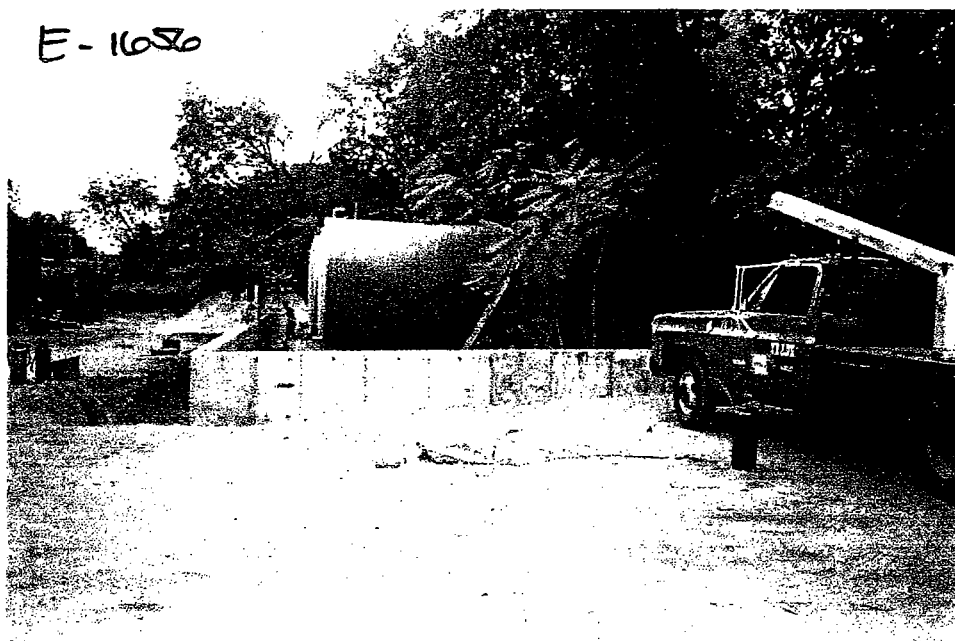
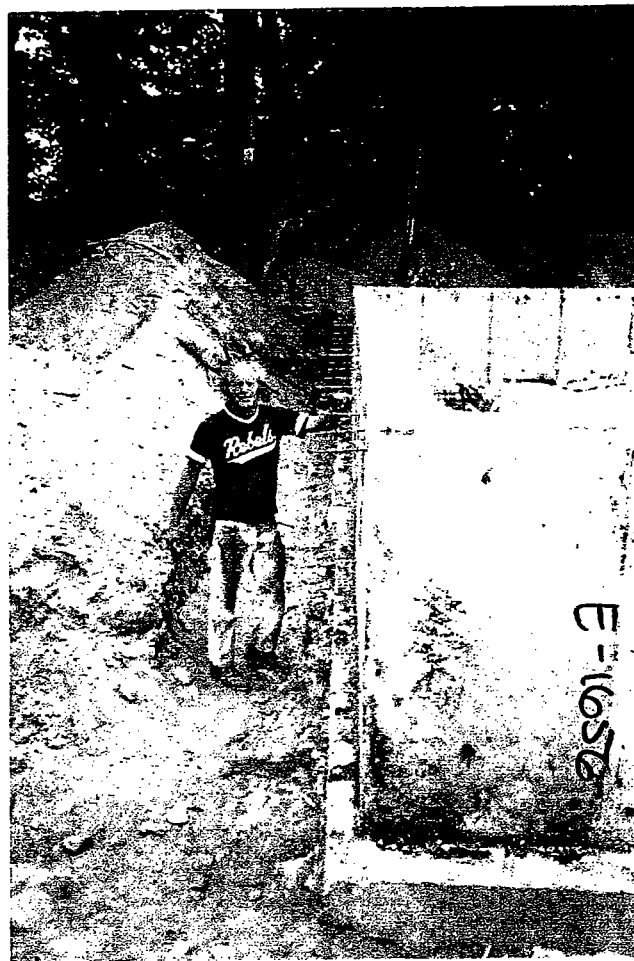
Mrs. Brady noted the operation is not in the flood plane or wet lands and the Conservation Commission also has no objection to the issuance of this license.

Sincerely yours,


ROBERT E. DOHERTY
Fire Chief

cc: Mrs. Brady - Conservation Commission
Mr. Walker - Board of Health

APPENDIX B
Photographs (Concrete Dike Installation)



[illegible]

I

PLEASE POST ON
PREMISE

CITY OF WOBURN

**PERMIT TO INSTALL — ALTER
FUEL OIL BURNING EQUIPMENT**

in accordance with provisions of Chapter 148 G. L. and Regulations made under authority thereof

Name John F. Murphy Name Douglas W. Poole
(Owner or occupant) (Installer)
Address 252 Salem St. Address 16 Montvale Lane, Woburn, MA.
Burner Storage
Name Wayne Burner (Bard) Type of Tank Steel
Manufacturer Bard Furnace Mfg. Capacity 1000 (or) Size 11x4 ft.
Model No. or Size 1-2 Location Back of garage
Type Gun Mass. Approval No. 147

_____ gals. fuel oil may be temporarily stored and used for testing purposes.

Permit issued 11/13/79 expires _____

Fee NONE Paid NONE By [Signature] Head of Fire Department

APPENDIX D

DEQE - Division Of Water Pollution Control



**DEPARTMENT OF ENVIRONMENTAL QUALITY ENGINEERING
DIVISION OF WATER POLLUTION CONTROL**

On May 12, 1986, the DEQE - Division of Water Pollution Control issued an Administrative Order (Docket No. 619) to the City of Woburn in response to violations of the Clean Waters Act. The Order established a moratorium "on new connections to, and extensions of, the Woburn sewerage system and requires the City to undertake specific activities to upgrade the operation and maintenance of its sewerage system, and to submit periodic progress reports on the status of these activities." In December 1987, the sewer moratorium was lifted only for properties in the eastern portion of the City of Woburn. Wildwood Avenue, west of the site, depicts the area where the moratorium requirements are still imposed.

A letter prepared by the Division of Water Pollution Control addressed to a waste oil facility operator was found in DEQE Northeast Region files reviewed. This letter, dated November 3, 1978, addressed land spreading of waste oil. The letter stated that "to reduce any adverse environmental effects, the Division of Water Pollution Control has adopted the policy of limiting land spreading of waste oil to the period of May 15 to October 15 for this year. Therefore, please be advised that this method of disposal of waste oil by land spreading is to be suspended until May 15 of next year." Since the institution of the DEQE Division of Solid and Hazardous Waste in the early 1980's, this oil-spreading practice is no longer permissible. A copy of this letter is attached.

November 3, 1978

Bill Murphy Waste Oil
70 Milliken Road
Woburn, Massachusetts 01801

Re: Massachusetts Department of
Land Spreading of
Waste Oil

Gentlemen:

This letter is a follow up to the letter you received this past June concerning the land spreading of waste oil. To reduce any adverse environmental effects, the Division of Water Pollution Control has adopted the policy of limiting land spreading of waste oil to the period of May 15 to October 15 for this year. Therefore, please be advised that this method of disposal of waste oil by land spreading is to be suspended until May 15 of next year.

Thank you for your cooperation. If you have any questions please contact this office or the appropriate Division of Water Pollution Control Regional Office.

Very truly yours,

Thomas G. Sullivan
Director

TGS/MSJ/van

cc: Southeast Regional Office
Western Regional Office

RECEIVED
EASTERN REGIONAL OFFICE

NOV 8 1978
MASS. DIVISION OF
WATER POLLUTION CONTROL

APPENDIX E

DEQE - Licensing Division Research



DEPARTMENT OF ENVIRONMENTAL QUALITY ENGINEERING - LICENSING DIVISION RESEARCH

CHEE representatives reviewed the Murphy's Waste Oil Service, Inc. License File for the site on December 16, 1987 and February 10, 1988. In 1981, the DEQE - Division of Solid and Hazardous Waste was formed. Different divisions subsequently formed including the Licensing Division, relative to Massachusetts General Laws, Chapter 21C. Under this jurisdiction, Murphy's Waste Oil Service, Inc. was issued an Interim Hazardous Waste License (issued in 1981) and has been operating under this license since then. Prior to DEQE formation, the site operated under a US-EPA Hazardous Waste Permit. No additional information was available relative to site licensing in these DEQE files reviewed.

The Waste Analysis Plan by Murphy's Waste Oil Service, Inc. was included in these files reviewed. The waste oils were tested for: specific gravity, flash point, sulphur, water and sediment, BTU's per pound, BTU's per gallon, and chlorine. There was no information in these files indicating any violations relative to this Waste Analysis Plan.

Most of the documentation presented in the Murphy's Waste Oil Service, Inc. License File was relative to Notices of Non-compliance for late monthly reporting; license amendments and modifications; installation of the earth dike around the tanks; Notice of Violation (1981) relative to the Contingency Plan; and deficiencies in the insurance bond for the site. Each DEQE notification was accompanied with a Murphy's Waste Oil Service, Inc. correspondence.

Notations relative to the partially-buried 275-gallon tank, formerly located on the Central Section of the site, were also found in these files reviewed. The notes specified that the tank is a small home heating oil tank, which is half-buried. The tank was "brand new" and painted "Waste Oil ONLY - M001." Only "homeowners - mostly Woburn residents" were allowed to use the tank for waste oil disposal and the tank was then emptied each Saturday into a storage tank. The notation continued with there is a "paved area around the tank - no berm."